DOCUMENT RESUME

ED 268 849 HE 019 179

AUTHOR Cross, K. Patricia
TITLE Taking Teaching Seriously.
PUB DATE 11 Mar 86
NOTE 15p.; Paper presented to the Annual Meeting of the American Association for Higher Education (Washington, DC, March 11, 1986).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Classroom Research; *College Faculty; *College Instruction; Educational Objectives; *Educational Quality; Higher Education; *Instructional Improvement; Productivity; Professional Recognition; Research Projects; Student Evaluation of Teacher Performance; *Teacher Effectiveness; Teacher Responsibility; Teaching (Occupation); Writing for Publication

ABSTRACT

Perspectives on good teaching at the college level are offered. Some evidence exists that students' retention of lecture material is poor. One promising approach is the Personalized System of Instruction, which emphasizes student involvement, high expectations, and assessment and feedback. Some faculty members now focus on recall and comprehension and do not require students to develop skills in analysis, synthesis, and evaluation. A problem exists when colleges whose mission is primarily teaching and student development turn to faculty publishing as the route to academic distinction. Good teaching is the first ingredient of quality education, and colleges need to find ways to encourage and reward good teaching. Research on student evaluations of teacher performance consistently indicates that: there is general agreement among students and faculty on the effectiveness of teachers; judgments by students about teachers persist and are replicated years after they graduate; and students' ratings positively correlate with the amount of student learning. It is proposed that research on teaching and learning be done by classroom teachers (classroom researchers), especially at teaching institutions. Advantages of this proposal are discussed, and external factors that have focused attention on the quality of instruction are also identified. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

K. Patricia Cross

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED268849

Session 9
Tuesday, March 11, 1986

TAKING TEACHING SERIOUSLY

K. Patricia Cross
Harvard Graduate School of Education

If Sleeping Beauty had dozed off in class at the University of Bologna in the 12th Century and been awakened recently by all of the noise about educational excellence, she would have awakened to a classroom that was quite familiar to her. Although generations of students and teachers have come and gone; the printing press has made knowledge easily available to the masses; television producers have learned to disdain the "talking head," and computers offer new opportunities for interactive learning, the talking head continues to reign supreme in higher education. So far, "teaching as telling" has withstood the test of time. But the times they are a changing--or are they?

Collegiate education has been bombarded recently with reform reports, legislation, and threats of legislation to improve the quality of undergraduate education. Without exception, the reports have called for greater attention to teaching in language that is strong and uncompromising. "Central to the troubles and to the solution are the professors...." declare the authors of one report (Project on Redefining...1985). The professors are blamed for everything from "lifeless, stilted, pedestrian teaching" (Bennett, 1984) to "a misguided overemphasis on research and a corresponding neglect of teaching" (Project on Redefining..., 1985). Graduate schools are charged with the production of "too many narrow specialists" (Bennett, 1985) and "awarding the Ph.D. degree to generation after generation of potential professors professionally unprepared to teach" (Project on Redefining..., 1985). And academic administrators come in for their share of the blame too. They are urged to put into place a reward system that will recognize effective teaching (Study Group..., 1984; Project on Redefining..., 1985; Bennett, 1985) and "give it as much status and attention as research now receives" (SREB, 1985).

The message of the current batch of reform reports is clear. Good teaching is on the agenda in the 1980's call for excellence in education. True, it has been on the agenda before. One hundred fifty years ago, the Yale report faulted colleges for failing to bring the "minds of instructors to act directly and vigorously on the minds of pupils..." (Quoted in Levine, 1986).

- -

Prepared for the Annual Meeting of the American Association for Higher Education, Washington, D.C., March 11, 1986. Permission to quote restricted.

HE 019 179

Is there any reason to think that the current campaign will make any real or lasting difference in college teaching?

My answer is a cautious "Maybe"--not so much because we in higher education mean business this time around as because forces external to higher education are coalescing to demand more attention to the quality of instruction.

In the first place, students have always been a major force for change in higher education, but never any more so than in today's buyer's market. We now have two groups of so-called non-traditional students dominating higher education enrollments for whom good teaching is especially important. First is the group of low-performing students who need good teaching if the access revolution is to have meaning. Second are the adults who are likely to demand good teaching if they are to give time and money to the task of learning.

It is not mere happenstance that some of the most interesting teaching is taking place in the community colleges where the work of teaching is most difficult and where these particular student pressures for change are greatest. It is noteworthy that the new Carnegie survey shows 85% of community college students satisfied with teaching at their college, compared to only 68% of the students in research universities (Chronicle of Higher Education, February 5, 1986).

A second external force for change is technology. To be sure, technology has been touted before as a competitor of live professors, but the technology of the past emphasized "teaching as telling." It remains to be seen whether the new interactive technologies, which conform more closely to what we think is required for good learning, will demonstrate their value.

Third is the growing interest in assessment and program evaluation. Student learning is a mission of every institution that teaches undergraduates. And it is quite fair to ask how well we do that job. For better or for worse--and I am inclined to think that much of the current approach to assessment is "for worse"--assessment is here, and everyone wants to know what students are learning in college. A concerted attack on the measurement of student learning will enable us to provide more adequate feedback to teachers, departments, and institutions. Ultimately, the most sophisticated forms of assessment will be built into instruction and curriculum, providing continuous feedback on the processes of teaching and learning.

Fourth is the new emphasis on alterable variables in educational research (Bloom, 1980). In the past, considerable attention has been given to the study of the characteristics of teachers and students--i.e. the qualities that they bring into the classroom. These are what Ben Bloom calls static or unalterable

variables because there is little that we can do as educators to change them. "This shift [to alterable variables] enables researchers to move from an emphasis on prediction and classification to a concern for causality and the relationship between means and ends in teaching and learning" (Bloom, 1980, p. 382).

Fifth is the current lack of mobility for faculty members. The necessity for faculty members to "make it" in their own institutions and for institutions to concern themselves with the long-term development of teachers places more emphasis on local reputations as good teachers and contributors to the college.

Finally, the major work force of higher education, the teaching faculty are, we are told in the fall issue of Change magazine (September/October, 1985) "at risk" and "deeply troubled." I interpret low faculty morale as a call for academic leadership that will restore the quality of curriculum and instruction to their rightful place as the first priority of educational leaders. For some years now educational administrators have been giving their major attention to management issues. Midst widespread concern for fiscal solvency, educational solvency has been allowed to drift. Clark Kerr (1984) concluded his study of the college presidency with the observation that trustees and faculty alike want stronger educational leadership from their presidents.

For all these reasons, it seems likely that we are about to take college teaching seriously. What would that mean?

First and foremost it would mean defining and identifying good teaching. Right now, the emphasis is on a definition of good teaching as that which results in good learning, and the most common way to measure student learning is by scores on academic achievement tests.

Does excellence in education mean high scores on achievement tests that measure mastery of subject matter content? Yes, but only in part. In this era of the knowledge explosion, what students know when they leave college will not be nearly as important as what they are capable of learning. Nevertheless, most teachers sincerely believe that knowledge of the subject matter that they work so hard to teach is important. Clearly, state legislators and the general public think it is important. What then do we know about how to teach for that admittedly important, but incomplete, goal of a college education?

Lecturing to students has long been decried, yet it is the overwhelming method of choice for college teachers. It is estimated that teachers in the average classroom spend about 80% of their time lecturing to students, who are attending to what is being said only about half of the time (Pollio, 1984). Added to the evidence of rather poor attention in the first place is the finding that the curve for forgetting course content is fairly

steep. A generous estimate is that students forget 50% of the content within a few months (Brethower, 1977); a more devastating finding comes from a study that concluded that even under the most favorable conditions, "students carry away in their heads and in their notebooks not more than 42% of the lecture content" (McLeisch, 1968, p.9). Those were the results when students were told that they would be tested immediately following the lecture; they were permitted to use their notes; and they were given a prepared summary of the lecture. The test for immediate understanding was bad enough, but when students were tested a week later, without the use of their notes, they could recall only 17% of the lecture material. There must be a better way to teach subject matter. And there is.

Research on mastery learning and its various offshoots is showing very positive results when the goal is the mastery of course content. Ben Bloom and his colleagues at the University of Chicago, after years of research on mastery learning, continue to show rather remarkable results, most recently that the average mastery learning student out-performs 84% of the students in control classes (Bloom, 1984).

Most promising for those of us working at the college level are the research findings on PSI (Personalized System of Instruction) which was introduced in this country twenty-two years ago by psychologist Fred Keller (1968) in a major address to the American Psychological Association. The strength of PSI lies in its ability to incorporate into its pedagogy the "three critical conditions of excellence" identified by the Study Group (1984) of educational researchers who prepared the NIE report entitled Involvement in Learning. Those critical conditions for effective learning are 1) student involvement, 2) high expectations, and 3) assessment and feedback (p.17). In PSI, the expectations are that students will meet pre-determined standards of 80% mastery, that they will be given immediate feedback through frequent testing, and that they must be involved to the extent of spending the necessary amounts of energy and time on the learning task.

After completing a comprehensive review of the substantial research that has been done on PSI over the past quarter of a century, James Kulik (1982) of the University of Michigan concluded that the average study showed that PSI was "remarkably effective." More than 80% of the studies found PSI significantly better than control classes when it comes to student achievement. When Kulik and his colleagues (1979) did a meta-analysis of 75 of the best studies, they found that PSI boosted average student achievement on final exams from the 50th to the 70th percentile. That is impressive, but equally persuasive are these findings:

1. PSI's superiority over control classes is especially clear in studies calling for integrative responses on final exams; there is less difference on exams calling for simple recall of information.

2. Achievement effects are clearest in studies using delayed measures of learning (i.e. exams weeks or months after completion of the course).

3. PSI is equally effective for high- and low-aptitude students.

4. Students consistently give PSI higher ratings.

There are other methods of teaching that appear equally promising, but none, I think, with quite the extensive evaluation that has been done on PSI.

I contend then that we do know quite a bit about how to improve teaching for better learning of subject matter content. I also contend that anyone pursuing excellence in postsecondary education needs to think beyond the mastery of subject matter. As Alfred North Whitehead remarked more than a half century ago, "A merely well-informed man is the most useless bore on God's earth" (1929).

There is little disagreement that colleges intend to do more than stuff the mind with quickly outdated subject matter. Howard Bowen's (1977) extensive review of the literature on the goals of higher education concluded that the single most consistent theme of the goals literature is that "Education should be directed toward the growth of the whole person through the cultivation not only of the intellect and of practical competence but also of the affective dispositions, including the moral, religious, emotional, social, and esthetic aspects of the personality" (p.33). That widely-accepted goal is what makes the assessment of higher education so difficult.

But even if we confine this particular discussion to the cognitive goals of higher education, we would do well to recognize that the needs of the 21st Century are for broadly educated people who can use their minds to invent new products or procedures and who can interpret trends and analyze problems. Peters and Waterman, the authors of <u>In Search of Excellence</u> call it "productivity through people." Much has been written on the importance of education to the economy of the post-industrial society. The general conclusion is that productivity will come from knowledge and people who know how to generate it and use it. A good idea can be worth millions today--so much that Rosabeth Kanter (1983, p.18) says "Idea power is the most important economic stimulus of all."

No wonder that employers, states, and the nation are so interested in an educational system that will result in people who have "idea power." Ideas are far more important to our world than information which has become both plentiful and cheap. "Running out of information is not a problem," says John Naisbitt, "but drowning in it is" (1982, p.24).

Session 9

There is some danger that students in our classrooms are drowning in information now. Many bone-weary teachers, concentrating hard on putting something into student minds that will not leak out on the way to the next class, teach as they were taught. There is nothing in the preparation of college teachers to break the cycle of teaching as telling, and information is quite likely to flow from the notes of the professor into the notebooks of students without passing through the minds of either.

Despite the eloquence of those who appear on regular cycles to remind us that the questioning mind is closer to the ideal of the educated person than the well-stuffed mind, research shows that most teachers, in universities as well as in community colleges regard themselves as information disseminators (Axelrod, 1976; Richardson, et al. 1983). The response of many faculty members to the perceived poor quality of today's students is to reduce cognitive demands to the low-level skills of recall and comprehension rather than to require students to develop the higher level skills of analysis, synthesis, and evaluation. Dick Richardson and his colleagues (1983) call this "bitting," which refers to the dissemination of isolated bits of information, calling for little more than rote recall from students. For a variety of reasons, instructors and students may jointly "buy into" classes with low-level cognitive demands. Among the reasons are these: 1) socialization of students throughout their school years to absorb information; 2) growing demands on teachers for concrete evidence of student "learning;" 3) faculty time pressures which favor straightforward oral or written presentation and simple forms of student evaluation; 4) the increasing identification of college teachers with narrow disciplinary specialties rather than with the broader community of educated persons and finally, the tendency of the academic establishment itself to send confused messages about what constitutes academic excellence.

Increasingly colleges seeking academic distinction do so through recruiting and rewarding faculty researchers. In the prestige hierarchy of higher education, teaching is considered a second-class activity. To be labeled a "teaching institution" is to be damned with faint praise. While the "teacher" is seen struggling with mundane student minds, the "researcher" is presumed to be responding to a higher calling to contribute to the world's knowledge or at least to be finding intellectual fulfillment worthy of one's graduate study.

The paradox faced by the academic community is that as <u>individuals</u> the great majority of faculty members--70% according to the recent Carnegie Study (<u>Chronicle of Higher Education</u>, December 18, 1985)-- say that their primary satisfactions and interests lie more in teaching than in research. It is in the collective culture of academe that research achieves such high

status. In their recent study of faculty, Jack Schuster and Howard Bowen (1985) express concern about the "research surge" now taking place in institutions where research has not been a priority mission in the past. "We doubt," they write, "that the stampede toward publishable research and scholarship, or what sometimes passes as scholarship, serves the nation's needs, or the longer-term interests of those campuses historically committed to effective teaching" (p.16).

Unfortunately, today's opportunities for most institutions to be more selective about faculty hiring have resulted, not in a better match of faculty talents to distinctive institutional missions, but in more monolithic definitions of academic excellence with the research university as model. Most faculty believe, correctly it seems (Tuckman, 1979), that publications in refereed journals are a more assured route to advancement than outstanding teaching.

Yet, despite today's pressures for publication, 70% of all faculty members say they are not currently doing any research that they expect to lead to publication (Chronicle of Higher Education, December 18, 1985). No wonder our faculties are demoralized. There is a problem, I think, when colleges whose mission is primarily teaching and student development are turning to the publications of faculty as their dubious route to distinction.

Unfortunately for all of us struggling to keep up with the latest knowledge in our ever-narrowing subspecialties, many faculty publish, not because they have anything to say, but because they need publications for their vitae. New journals are launched, not to disseminate knowledge, but to provide outlets for upwardly striving faculty members. There are now over 1000 journals in psychology, 1300 in sociology, and 2800 in education published in the United States.* In order to fill the 40,000 scientific and technical journals that exist today, an article is published at the rate of one every 30 seconds, 24 hours a day, 365 days a year.

The cause of knowledge is not well-served by such undisciplined proliferation of publications which serve only to choke off access to significant knowledge. Unfortunately, some huge amount of the published research that clogs our academic arteries is trivial by any standard, and it is leading to a failure of heart in the academic enterprise.

- -

*Estimates from Ulrich's International Periodical Directory, On Line.

Session 9

It may not be amiss to observe that if faculty were themselves more involved in the type of scholarly activity that calls for the search for meaning through synthesis and interpretation rather than the current overemphasis on data collection, manipulation, and description, they might serve as better teachers and better models of the educated mind at work. The teacher-scholar was pushed off-stage by the research scientist in the 1960s, and the results, whatever they may have done for the advancement of knowledge, have not been salutary for undergraduate education.

Good teaching is the first ingredient of quality education, and higher education is going to have to find ways to encourage and reward good teaching. One of the major themes in the fall issue of Change (September/October 1985), analyzing the sad state of the faculty is that deep down teachers no longer feel valued by their institutions. For most faculty members, teaching is their profession. We cannot expect high quality education until that simple fact is recognized. That means that teachers will need the wholehearted support of their institutions, starting with the commitment to evaluate teaching performance in decisions to hire, promote, and tenure faculty members. We cannot continue to hide behind the excuse that we cannot reward good teaching because we can't tell a good teacher from a poor one. That defies our common experience, and it is also contrary to most research on the question.

There are many styles of effective teaching but good teachers have common characteristics, and they can be identified with pretty good agreement by both students and colleagues (Wilson, 1975). Although most college teachers now accept the usefulness of student evaluations, and two-thirds of the faculty in the Carnegie survey agree that "teaching effectiveness, not publication, should be the primary criterion for faculty promotion" (Chronicle of Higher Education, December 18, 1985, p.26), there are still many myths and misunderstandings about student ratings which have become the most common form of teacher evaluation. There is now, however, reasonably consistent agreement in the research on student evaluations for the following assertions:

1) There is general agreement among students and between students and faculty on the effectiveness of teachers.

2) The judgments which students make about their teachers persist and are replicated years after they graduate.

3) Student ratings are relatively independent of student characteristics which are commonly thought of as sources of bias, such as grade point average, actual grade and expected grade in course, and class level.

4) Student ratings are positively correlated with the amount of student learning. (Gaff & Wilson, 1971, p.479).

While these positive research findings do not mean that the evaluation of teaching should be based solely on student ratings, they do suggest there is little basis for the myths that have grown up around student evaluations of teaching (See Eble, 1976). There is no evidence to support the myths that popular teachers are mere showmen, that the mature perspective of alumni will find virtues in the professors that were not respected ten years earlier, or that there is lack of agreement on what constitutes effective teaching.

I can find no legitimate reason for not increasing institutional recognition of good teaching. More than 90% of the students in every kind of institution from community colleges to research universities, believe that "teaching effectiveness, not publications should be the primary criterion for faculty promotion" (Chronicle of Higher Education, February 5, 1986) and a majority of faculty everywhere except in the research universities agree (Chronicle of Higher Education, December 18, 1985). The Governors' Task Force on Quality is urging colleges and universities to improve their assessment of teaching, observing that many legislators are convinced that universities "underestimate the states' interest in the quality of teaching" (Chronicle of Higher Education, January 8, 1986, p.18).

If the states are genuinely interested in the quality of teaching, they will need to give more attention to its support. Ironically, part of the problem lies in the fact that teaching has a stable and predictable source of funding, while research funding is unstable and competitive. In times of scarce resources, research grants are even more attractive than usual because they provide discretionary funds for both colleges and faculty members. As travel funds and clerical help are cut back in state and institutional budgets, teachers gain access to the good life in academe by securing a research grant which will provide discretionary dollars. Not surprisingly, colleges hard-pressed for funds encourage and reward those who bring in additional money.

Teaching, in contrast, has a stable base of funding. Teachers will be paid and students will receive academic credit whether learning takes place or not. Thus there is no incentive for either teachers or colleges to expend their energies on teaching.

The State of Tennessee has one possible answer to this dilemma in its performance-based budgeting which enables colleges to supplement their core budget by demonstrating progress toward specified measures of student learning. That approach has the advantage of getting departments to work together toward common goals, and the superior teacher becomes a considerable asset to the department. Many departments already provide modest funding for course development, but they might also consider incentives

such as making additional travel funds available to outstanding teachers or to faculty attending conferences on teaching.

Being a teacher is a challenging intellectual task. Done right, it demands knowledge about human learning, and it requires evaluation of how students are responding that is every bit as exacting as a physician's monitoring of the responses of a patient to treatment. Unfortunately teaching has not been perceived as intellectually challenging because we practice it at such a primitive level. The professor who gets bored by giving the same lectures year after year concludes that his mind will be recharged by learning about recent developments in his discipline. That is today's commonly-accepted antidote to "going stale," and I certainly don't reject it as <u>one</u> solution. But if college teachers were practicing their profession at a more sophisticated level, they would discover that the classroom is, or should be, a challenging research laboratory, with questions to be pursued, data to be collected, analyses to be made, and improvements to be tried and evaluated.

Donald Schön (1983) has written a provocative little book entitled "The Reflective Practitioner" in which he contends that research in professions such as law, management, and education has proved of little use to practitioners. He observes that "Teachers have gained relatively little from cognitive psychology" (p.308) and it is hard to disagree. The questions for research seem not to be the questions for practice, and efforts to connect one to the other have not been successful. Schön suggests that practitioners who reflect thoughtfully on what they are doing, will get us further along the road to improving practice in the professions than will discipline-based research.

Schön's work gives me the basis for the proposal for action that I am about to make. I believe that research on teaching and learning should be done in thousands of classrooms across this nation by classroom teachers themselves. What is needed if higher education is to move toward our goal of maximum student learning is a new breed of college teacher that I shall call a Classroom Researcher. A Classroom Researcher is one who uses the classroom as a laboratory, collecting data and using a variety of research methodologies appropriate to the study of teaching and learning in his or her particular discipline. I suggest that the concept of Classroom Researchers should be the special province of "teaching institutions," i.e., community colleges, state colleges, and most liberal arts colleges. This proposal for action at this conference with "Action" as its theme offers a number of advantages.

First, there is good reason to think that while good teachers have certain characteristics in common--knowledge of their subject and enthusiasm for teaching it, for example--good teaching may not be the same in ethics as in physics. One of the

reasons for the success of PSI, I think, is that it has been the province of classroom teachers from the beginning. Its methods are especially appropriate for teaching introductory psychology, and psychologists have had the research skills to evaluate and improve it in their own classrooms. One of the most troublesome bottlenecks to the implementation of research findings has always been the translation of research into practice. If researchers and practitioners were one, the likelihood of implementation would be greatly improved, while the fascination with passing fads would be reduced by the necessity for continuous evaluation of learning by teachers themselves.

Moreover, if the demoralization of the faculty is due to a lack of professional identity and shared values, as is claimed, then the model of Classroom Researchers has much to offer to departmental morale and cohesion. Departments would become the focal points for research on the teaching of the disciplines represented, and faculty meetings might well become seminars for the improvement of teaching. While some of the discoveries about improved teaching methods would warrant nation-wide dissemination and discussion, there is some merit in providing teachers with a strictly local platform for campus recognition of their work on teaching.

The involvement of teachers in searching for new knowledge about teaching effectiveness also begins to build a foundation for improved evaluation of teaching, an essential ingredient in rewarding teaching in promotion and tenure decisions. Finally, and perhaps most important, is that as teachers study the learning situation, their actions, and student responses, they will probably learn more about learning as a process, and they will almost certainly learn more about improving their own teaching.

Most good teachers are constantly evaluating student responses, but they do this unsystematically, without any training and without a common language for mutual support and discussion. What I am suggesting is that the graduate schools take on the responsibility for developing and teaching the methodological tools for classroom research. Every graduate student who plans to be a college teacher anywhere should receive training in classroom research methods and should have an opportunity to do classroom research and to evaluate his or her own effectiveness in field work in the teaching discipline. The profession of teaching would be greatly strengthened--and yes, made more intellectually interesting--if classroom teachers had the research skills to measure the impact of their teaching on student learning.

Although I have suggested that teaching institutions take the leadership in conducting research related to the improvement of college teaching because this task is especially appropriate to their mission, I do not mean to suggest that professors in

research universities should be immune from the need for conducting classroom research. As a matter of fact, in his annual report this year, Harvard President Derek Bok made some suggestions to the Harvard faculty for creating an environment that rewards and encourages better teaching. Among his suggestions are some that would be included in the tools of the Classroom Researcher. He is urging members of departments at Harvard to come together to discuss ways of adapting their teaching to the shared purposes of an undergraduate education at Harvard and to think together about how to craft examinations to reinforce their common aims. Examinations, of course, are one important tool of the Classroom Researcher, and they are one important piece of the assessment puzzle.

The call of this conference is to move from rhetoric to action. I can think of no action that would do quite as much for the improvement of teaching and learning as to let a thousand classroom laboratories bloom across the nation. Their purpose would be to discover more effective teaching methods for the Classroom Researchers themselves, but equally important to establish a foundation of knowledge about college teaching for maximum learning. That would be taking teaching seriously, and it would move us toward our goal of quality education for all.

3/3/86

Session 9

REFERENCES

Axelrod, Joseph. The University Teacher as Artist. San Francisco: Jossey-Bass, 1976.

Bennett, William J. To Reclaim a Legacy. Washington, D.C.: National Endowment for the Humanities, November, 1984.

Brethower, Dale M. "Research in Learning Behavior: Some Implications for College Teaching" in Stephen C. Scholl and Sandra Inglis (Eds.) Teaching in Higher Education. Columbus, Ohio: Ohio Board of Regents, 1977.

Bloom, Benjamin S. "The New Direction in Educational Research: Alterable Variables." Phi Delta Kappan, 61(6), February 1980.

Bloom, Benjamin S. "The Search for Methods of Group Instruction as Effective as One-to-One Tutoring." Educational Leadership, May 1984.

Bowen, Howard. Investment in Learning. San Francisco: Jossey-Bass, 1977.

Eble, Kenneth. "The Mythology of Teaching" in The Craft of Teaching. San Francisco: Jossey-Bass, 1976.

Gaff, J.G. and Wilson, R.C. "The Teaching Environment." AAUP Bulletin, December 1971, pp. 475-493.

Kanter, Rosabeth. The Change Masters. New York: Simon and Schuster, 1983.

Keller, F.S. "Goodbye Teacher." Journal of Applied Behavior Analysis, 1968, 1, 79-89.

Kerr, Clark. Presidents Make a Difference. Washington, D.C.: Association of Goerning Boards of Universities and Colleges, 1984.

Kulik, James A. "Individualized Systems of Instruction" in Harold E. Mitzel (Ed.), Encyclopedia of Educational Research, Fifth Edition, Vol. 2. New York: The Free Press, 1982.

Kulik, J.A.; Kulik, C.L.; and Cohen, P.A. "A Meta-Analysis of Outcome Studies of Keller's Personalized System of Instruction." American Psychologist, 1979, 38, 307-318.

Levine, Arthur. "150 Years Ago?" Change, January/February, 1986, p.51.

Session 9

McLeish, J. The Lecture Method. Cambridge Monographs on Teaching Methods, No. 1. Cambridge, England: Cambridge Institute of Education, 1968.

Naisbitt, John. Megatrends. New York: Warner Books, 1982.

Peters, Thomas J. and Waterman, Robert H. Jr. In Search of Excellence. New York: Harper and Row, 1982.

Pollio, Howard R. "What Students Think About and Do In College Lecture Classes." Teaching-Learning Issues, No. 53, Spring 1984. Knoxville: University of Tennessee Learning Research Center.

Project on Redefining the Meaning and Purpose of Baccalaureate Degrees. "Integrity in the College Curriculum." Reprinted in the Chronicle of Higher Education, February 13, 1985.

Richardson, Richard C. Jr.; Fisk, Elizabeth C.; and Okun, Morris A. Literacy in the Open-Access College. San Francisco: Jossey-Bass, 1983.

Schön, Donald A. The Reflective Practitioner. New York: Basic Books, 1983.

Schuster, Jack and Bowen, Howard. "The Faculty At Risk." Change, September/October, 1985.

Southern Regional Education Board (SREB). "Access to Quality Undergraduate Education." Reprinted in the Chronicle of Higher Education, July 3, 1985.

Study Group on the Conditions of Excellence in American Higher Education. Involvement in Learning. Washington, D.C.: Department of Education, 1984.

Tuckman, H. "The Academic Reward Structure in Higher Education." In Darrell Lewis and William Becher, Jr. (Eds.), Academic Rewards in Higher Education. Cambridge, Ma.: Ballinger, 1979.

Whitehead, Alfred North. The Aim of Education and Other Essays. New York: Macmillan, 1929.

Wilson, R.C. College Professors and Their Impact on Students. New York: Wiley, 1975.